

TITLE: CONTAINER FOR HOLDING PUNCHES AND DIES

BACKGROUND OF THE INVENTION

5 Containers for storing punches and dies for use in the manufacture of pharmaceuticals are well known in the art. Desirable is a container that can securely hold the punches and dies while at the same time ensure the cleanliness of the equipment. Present containers, however, do not securely hold
10 the punches and dies in place during transport, nor do they provide easy access to separate compartments within the container that store the punches and the dies. In addition, present containers are limited with respect to capacity and do not allow flexibility for adapting the container for
15 applications requiring a greater number of punches and dies. Therefore, a need exists for an improved container for storing and transporting punches and dies.

A principle object of the present invention is to provide a punch and die transport container that improves upon the
20 state of the art.

A further object of the present invention is to provide a punch and die container that uses an insert that can be easily removed for cleaning purposes.

Yet another object of the present invention is to provide
25 a punch and die transport container that is able to hold a desiccant tablet to maintain the cleanliness of the container.

Still another object of the present invention is to provide a punch and die transport container that utilizes a lid to access a first compartment holding punches and a door
30 to access dies from a second compartment.

Another object of the present invention is to provide a punch and die transport container that uses a plurality of containers that interconnect vertically and horizontally allowing several containers to be stored in a compact space.

Yet another object of the present invention is to provide a plurality of punch and die containers that interlock so that the size of the container can be adjusted.

Still another object of the present invention is to
5 provide a punch and die transport container that is translucent so that an individual can determine the amount of punches and dies in a container without having to open the container.

These and other objects, features, or advantages of the
10 present invention will become apparent from the specification and claims.

BRIEF SUMMARY OF THE INVENTION

The container of the present invention comprises a
15 housing having a hollow interior that partially receives an insert housing. The insert housing creates a first compartment and defines a second compartment as the remaining portion of the hollow interior of the container. The insert, or first compartment is adapted to receive and orient punches
20 and can be easily accessed by opening a lid on the top of the container. The second compartment is partially defined by a sloped bottom floor of the housing and is adapted to hold dies that can be accessed via a retractable door. The insert is
25 comprised of two detachably connected halves that when placed together form a plurality of apertures that receive punches.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the container and insert wherein the side of the container has been removed;

30 Fig. 2 is a plan view of the top of the insert;

Fig. 3 is a perspective view showing a series of containers detachably joined to one another.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings, the container 10 of the present invention has a housing 12 having side walls 14, end walls 16, a bottom 18, and an open top 20 that form a hollow interior. The bottom 18 of the housing 12 is slanted from one end to the other. The bottom 18 also has protrusions 22 that extend downwardly from the bottom wall 18. Pivotally connected to one end 16 of the housing 12 at the top 20 is a lid 24. The lid 24 is preferably translucent to allow visual access into the housing 12. Likewise, the housing 12 is preferably translucent to provide visual access to the interior. The lid 24 is releasably held in a closed position by any conventional manner such as by a latch 26. Also preferred is that the lid 24 have notches 28 formed to receive protrusions 22. The lid also preferably has a plurality of recesses 30 for purposes to be described.

Extending from the interior of side walls 14 are a plurality of protrusions 32 formed to receive an insert housing 34. The insert 34 comprises a first compartment 36 and defines a second compartment 38 in the hollow interior of the housing 12 that remains after insertion. Pivotally connected to the end wall 14 near the bottom 18 is a door 40 that provides access to the second compartment 38. The door 40 is preferably translucent to allow visual access to the second compartment 38.

The insert 34 is comprised of a first half 42 and a second half 44 that are detachably joined together along a vertical parting plane 46 to form the first compartment 36. While the first half 42 and the second half 44 can be joined in any conventional manner, preferred is that the halves be folded along a seam (not shown) that joins at least a portion of the bottom 62 of each of the halves. The halves 42 and 44 are further detachably joined by a latch 52 that extends from

one half 42 and engages a retaining slot 54 connected to the other half 44.

When joined, the halves 42 and 44 form an insert housing 34 having a top 56, side walls 58, end walls 60, and a bottom 62. The top 56 has a plurality of apertures 64 for receiving punches 65. The apertures 64 have a pair of slots 66 oppositely disposed from one another to form a key hole entry. Extending around the apertures 64 from the slots 66 are sloped portions 68. Also, extending upwardly from the slots 66 of the apertures are support members 69.

The sides 58 of the insert 34 preferably have partially curved outer and inner surfaces 70 formed to securely receive a punch 65. The ends of the side walls 58 also have slots 72 formed to receive the protrusions 32 from the side walls 14 of the container housing 12. Mounted near the top of the end walls 60 are clips 74 which are used to releasably secure the insert 34 within the container housing 12.

To increase the capacity of the container, a plurality of housings 12 are releasably joined together. While the housings 12 can be joined in any conventional manner, preferred is the use of clasp 76 and a pair of dowels 78 that extend outwardly from the side wall 14 of a housing 12. The clasp 76 is received in a retaining slot 80 located on the side wall 14 of a separate housing 12, and the dowels 78 are received in openings 82. A retaining lock 84, located on the end wall 16 of the housing 12 engages clasp 76 through slot 80 to releasably secure one housing to another. When a plurality of housings are joined together, the housings on the ends have a handle 86 mounted to the exterior side wall 14 of the end housing 12 as shown in Fig. 3.

In operation, the first half 42 and the second half 44 are detachably joined to form the insert housing 34. The insert 34 is then slidably placed within housing 12 by aligning the protrusions 32 of the housing 12 with the slots

72. The clip 74 engages the interior of the end wall 16 of the housing such that the insert 34 is releasably secured within the housing 12. The insert 34 is inserted a sufficient depth such that space within the hollow interior of housing 12
5 below the insert 34 forms the second compartment 38.

A plurality of punches 65 are inserted through the apertures 64 of the insert 34 for storage and transportation within the first compartment 36. The design of the slots 66 along with the sloped portions 68 and the support members 69
10 orient the punches 65 and assist in maintaining them in a vertical upright position. Likewise, a plurality of dies 86 are inserted through door 40 for storage within the second compartment 38. The bottom 18 of housing 12 slopes downwardly toward the door 40 to facilitate unloading of the dies when
15 needed. In an alternative embodiment, the punches and dies are retained in the first compartment 36 while a removable cleaning tray is placed in the second compartment 38.

In place of punches 65, desiccant tablets 88 are inserted in some of the apertures 64 to absorb moisture which assists
20 in preventing the collection of dirt particles for maintaining a clean container. The tablets 88 extend from the first compartment 36 through the bottom 62 of the insert 34 and into the second compartment 38 to absorb moisture from both compartment. Also, the detachable first half 42 and second
25 half 44 allow easy access to the interior of the insert 34 for cleaning and sterilization.

To increase the capacity of the container 10, a plurality of housings 12 are detachably joined together through use of the clasp 76 and dowels 78 as received in slot 80 and openings
30 82. The handles 86 mounted on the exterior side walls 14 of the end housings 12 facilitate the carrying of the container 10. Likewise, notches 28 on the lid 24 of one housing 12 receive the protrusions 22 from another housing to facilitate stacking of one container on top of another. Also, the

recesses 30 receive straps or banding (not shown) which further bind the housings 12 together and assist in the ease of transporting the containers.

From the proceeding description, it can be seen that this
5 invention improves upon the state of art and meets the outlined objectives.

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